Online Tutor Training: An Instructional Design Project
Draft Final Master's Project Paper

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Abstract: Online tutor training has been administered by a number of programs across the University of Hawai'i, including a range of topics and delivery sequences. Though not consistently explicit, it appeared the instructional strategies often mirrored the instructional content. This research project included: Bloom's Taxonomy, Checking for Understanding, and Scaffolding/ Zone of Proximal Development. The study involved a total of 13 undergraduate tutors, with prior tutoring experience and training ranging from 0 to six semesters. Three learning modules (one per topic) were designed and measured for effectiveness. Each module consisted of a pre-test, an explanation and application of topics, and a post-test to measure knowledge acquisition. Modules were available online for tutors to complete asynchronously in lieu of traditional in-person training. Additionally, participants were given a demographic and attitudinal pre-survey and attitudinal post-survey. Results suggest an increase in knowledge of curriculum topics and a little change in training satisfaction. Cognitive post-tests showed exceptional improvement in clarity of short answer justifications, and affective post-survey results included high ratings for application and job performance confidence. Future recommendations include maintenance of social aspects during asynchronous, online training, especially in a field such as tutoring that demands real-time interaction.

Statement of the Problem

The Learning Assistance Center (LAC) began as a small program out of the Counseling Center at the University of Hawai'i at Mānoa, focusing primarily on study skills and academic motivation. The program began to integrate content area tutoring, beginning with Economics as its first. Today, the LAC offers tutoring for over 50 undergraduate courses, including Academic Consultation which now houses study skills and academic motivation. The 20+ undergraduate tutors are trained weekly throughout the semester on concepts and techniques such as self-efficacy (Bandura, 1977), grit (Duckworth et al., 2007), etc. (LAC, 2018). Topics are chosen specifically to enhance the tutors' abilities beyond simple homework help. Past training meetings have been organic and dynamic, with rich discussion pockets developing in each meeting. Role-playing and drawing activities optimized the face-to-face (F2F) training environment, affording tutors the chance to bond while they learned. However, the training curriculum was only lightly documented, and according to training feedback, there was little variety of activities per topic and senior tutors who had sat through the same cycle every fall and spring semester had become uninterested. Tutors also admitted to frequently hearing terms, such as Checking for Understanding, but not really knowing what they meant in the context of their job duties. As a

result, tutors intuitively used techniques rather than intentionally, limiting the effectiveness of the session with their tutees.

Additionally, the LAC has long been pursuing College Reading & Learning Association (CRLA) International Tutor Training Program Certification (ITTPC). Such certification could provide benefits such as increased, center-wide motivation through involving upper-level tutors in training lower-level peers, having an internationally recognized tutor center certification, as well as fostering interest and collaboration between other tutoring programs across campus. Due to the heavy amount of paperwork that is required, ITTPC had previously been a far-off endeavor. As a requirement for any certification, documented training must be in place and is perhaps the largest and most complex piece of the entire process (ITTPC, 2018). Prior to even considering the specific topics covered by each level, a formalized training is a vital foundation upon which level-1 CRLA certification can be built.

Having returned to the LAC as a Program Assistant, I was able to draw on my past experiences as an anatomy and physiology peer tutor and integrate them with my observations from hiring and training tutors. I envisioned a training that included both what I wish I had learned as a tutor with what I looked for in a successful staff member. Combined with my experience in graphic design and coursework in instructional design, it was this comprehensive, hybrid experience that motivated me to design and document a new training for the LAC. Therefore, the purpose of this instructional design project is to create and evaluate a freshly designed online training for undergraduate tutors at the LAC and serves to bring the LAC a step closer to acquiring Level-1 CRLA certification.

Literature Review

Tutor Training Value. Boylan, Bliss, & Bonham (1997) found early evidence of the impact tutor training has on successful tutoring programs. Programs alone had no effect on GPA or retention, but those students who participated in tutoring programs where tutor training was implemented were more likely to earn higher first semester and cumulative GPAs as well remain in school at 4-year institutions. In fact, Hock, Pulvers, Deshler, and Schumaker (2001) assert that improperly or entirely untrained tutors, at the secondary through post-secondary levels, might even engage in detrimental practices such as completing a student's assignments for them, ridiculing student performance, or providing answers before a student has a chance to process the content or questions at hand.

E-Learning Challenges and Strategies. Potential challenges were also reviewed for online learning. Van Rooij and Zirkle (2016) identified sound pedagogy, design, and accessibility as three components whose balance must be achieved in order to create successful online course development. While the study focuses on formal for-credit course rather than workplace, professional development training, similarities were found in design and development. Authors rapid prototyped for six months, designing, developing, and testing an online course for undergraduate students of a four-year university. Interestingly, the course content was on preparing for online learning, especially as more courses become available as distance education classes. Of the three components, accessibility appears to be the most

challenging to achieve in this particular study, and pedagogy and design will be the initial, primary focus.

Additionally, Menchaca and Bekele (2008) identified five major factors that contribute to online learning success: Human factors, Course factors, Leadership factors, Pedagogic factors, and Technology factors. Each set of factors included numerous relevant components of interest for incorporation into this research study to ensure success in the online learning environment. Attitude, structure/organization, clear expectations, problem-based and learner-centered, multimedia, and asynchronous. Learning success was measured using, among others, learning outcomes and student satisfaction. These two measures align with this study's domains of learning (cognitive and affective) as described further in the Research Questions below, thereby supporting the inclusion of the mentioned success factors.

Existing Tutor Training at the University of Hawai'i. Finally, three existing tutor training programs across UH systems were analyzed for things such as content, delivery, platform, module format, media formats, and alignment with the aforementioned success factors. The first, the Online Learning Academy (OLA) on the Mānoa campus is an online tutoring service where students meet with tutors virtually in Blackboard Collaborate (BBC). OLA employs a hybrid tutor training, utilizing Laulima as its learning management system (LMS) for the online portion. Tutors progress through four modules and receive what appears to be diminished coaching, where direct intervention is gradually taken away. The first two modules are completed in person, the third is done virtually, and the fourth is an observation-practicum. Training is on a single page on Laulima with no multimedia. This is presumably because most modules are done with a mentor and do not required explanatory visuals or videos. Regarding content, modules include technical and introductory skills, asking "good" questions, checking for student understanding, building relationships with students, etc. It's clear that the OLA scaffolds (Wood et al., 1976) its tutors, advancing them from *remembering* how to launch BBC tools, to *creating* along Bloom's Taxonomy (Krathwohl, 2002). The last module includes a practicum for application (Online Learning Academy, n.d.). Of this training, Checking for Understanding, Scaffolding, Bloom's Taxonomy, Zone of Proximal Development, and application were the most noteworthy for consideration to be incorporated into LAC training.

The Learning Emporium (LE) on the Mānoa campus is a walk-in, F2F tutoring service for the College of Natural Sciences. As such, tutoring is offered for Chemistry, Information and Computer Science, Math, and Physics. Tutors have a reading list paired with three tutorials in the form of PowerPoint presentations (with printable PDF links) on a single page of the LE website. Content includes greeting students, checking for understanding, and wraps up with creating bridges between new and existing knowledge. Creating a bridge is similar to achieving levels of Bloom's Taxonomy (Krathwohl, 2002). Videos and PDFs which supplement the brief, written descriptions are embedded throughout. What sets the LE training apart from the OLA training is the section on Tutoring Students with Disabilities, which provides specific techniques for accommodation and is a Vimeo featuring the KOKUA program (a program that provides academic services toward equal access). This training appears to be a standalone to be completed asynchronously, although it is unclear whether this training is required (College of Natural Sciences, n.d.). Of this training, Checking for Understanding and Bloom's Taxonomy were the

most noteworthy for consideration to be incorporated, and accessibility was noted as a future module to be incorporated.

The No‘eau Center at the West O‘ahu campus is a peer tutoring learning center that is currently ITTPC Level-1 certified. A study done by Perez (2018) describes the center as fostering independent learning with tutoring methods and strategies as part of a rigorous training. The LAC has a similar mission for its students. The study was an instructional design project that designed, developed, and evaluated five modules: Tutoring Foundations, Learner Needs, Questioning Strategies, Tutoring Methods, and Structuring the Learning Experience. Each module was supplemented with scaffolds (Wood et al., 1976) such as summary graphics, multimedia components such as videos, and clear objectives rephrased as Tutoring Benefits. The time commitment isn’t listed, but the Pre-Test, Module, Post-Test pattern is explicit, clearly lightening the cognitive load of the tutors, freeing their focus for tutoring concepts over navigation of the platform. Of this training, the clear graphics, multimedia components, and instruction pattern were the most noteworthy for consideration to be incorporated into the LAC.

Methodology

Research Questions.

1. How does acquisition of training through online modules affect tutor competency in: Bloom’s Taxonomy, Checking for Understanding, Scaffolding, and Zone of Proximal Development?
2. How does tutor attitude toward training change after inclusion of online training modules?

RQ1 refers to the cognitive domain, addressing the need for tutors to fully comprehend basic tutoring principles. RQ2 refers to the affective domain regarding tutor motivation to be trained.

Participants. Approximately twenty-two undergraduate LAC tutors at the University of Hawai`i at Mānoa were administered a recruitment email (See Appendix 3) for this module-based online training study, including an informed consent form (Appendix 4). Of the staff, a total of 13 tutors took part in the study. They range in age from 19-23 and had class standings between sophomores and seniors. Per the hiring process for the LAC, participants were all high-achieving, earning at least a B grade in the courses they tutor. Additionally, participants planned to earn bachelor’s degrees in majors such as Math, Biology, and even Astrophysics. Some tutors were on pre-medical pathways or were on track to pursue graduate degrees. In terms of prior knowledge, tutors have varying degrees of training as well as in-field tutoring experience (Table 1). They have admitted to often hearing tutoring terms, but not fully understanding what they are or how to apply them. In contrast, others emphasized what they entered LAC training with, including mastery of the subjects they tutor, subsequent self-efficacy to tutor it, as well as intrinsic motivation to help other people (Shirai & Urasaki, 2018).

Table 1. Tutor Demographics.

Demographic	*Number*	*Percentage*
Class standing		
Sophomore-Senior	13	100%
Semesters of tutoring experience		
<1	4	30.7%
1-2	2	15.4%
3-4	3	23.1%
4-5	0	0%
5-6	4	30.7%
Semesters of tutor training		
<1	4	30.7%
1-2	4	30.7%
3-4	4	30.7%
4-5	0	0%
5-6	1	7.7%

Additionally, the amount of work achievable in one meeting period (one hour) was analyzed to determine the appropriate amount of instruction to include. The time commitment for this project was one hour per module (one module per week) so employment compensation remained uncompromised. While all tutors participated in activities as part of mandatory training, only those who signed the informed consent were reported on in the data.

Content Analysis. When conducting an instructional analysis, basic topics covered in existing LAC tutor training were chosen and include: Bloom's Taxonomy, Checking for Understanding, Scaffolding, and Zone of Proximal Development. These topics were chosen due to their inclusion in other existing tutor training program across UH System. Upon review, the OLA and the LE both include content similar to scaffolding and Zone of Proximal Development but phrase the objectives differently. The OLA describes these concepts as, "Demonstrate strategies for giving feedback to students," and, "Demonstrate how to get a student to continue working independently with support," (Online Learning Academy, n.d.). The LE phrases this as, "Cultivate independence/Promote Active learning" as a guide (College of Natural Sciences, n.d.). Similar content trends were identified for Bloom's Taxonomy and Checking for Understanding; all four topics are described in detail below. Additionally, these topics provide a variety of theory and technique so tutors receive relevant content as well as concrete applications ideas to put into practice with their tutees.

The existing documentation on these topics and the instruction employed during training at the LAC meetings was examined for appropriate subskills and arranged in a hierarchical manner (see Appendix 1). However, identifying entry level skills proved difficult. It was a complex task to find the skills tutors possessed as new hires and further deducing which of those also applied to successful completion of training. As tutors develop and gain experience, these things become more intuitive and therefore increasingly difficult to articulate. Informal, qualitative interviews with senior staff revealed a robust list of entry skills, focusing primarily on intrinsic motivation, basic abilities as a student, and content expertise (Shirai & Urasaki, 2018). According to the interviewees content expertise contributes to tutors' abilities to impart this knowledge on their tutees. This need for confidence is outlined in an ARCS model hierarchy (see Appendix 2). While the true impact of tutor content expertise on student outcome remains unclear, what is clear is that tutor's resulting self-efficacy (Bandura, 1977) impacts the perceived role of a peer tutor.

Bloom's Taxonomy. The first of four topics included in this training is Bloom's Taxonomy. This Taxonomy, created in 1956 by Benjamin Bloom, served as a set of six defined categories of understanding within the cognitive domain (Krathwohl, 2002). The original taxonomy included the terms: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation (Bloom, 1956). Bloom intended these terms to both create a language to be used in creating learning goals and to determine the parallels activities and assessments objectives in curriculum design (Krathwohl, 2002). The first three levels were considered lower order thinking skills, most often associated with memorizing and understanding. The last three levels were considered higher order thinking skills, associated with abstract thinking and creating new content to demonstrate more comprehensive understanding. In the 1990's, the last two levels were switched, and all nouns were changed into verbs, making the new, ascending levels: Remember, Understand, Apply, Analyze, Evaluate, and Create (Common Sense Education, 2016). Over the years, many visual representations of Bloom's Taxonomy were developed outside of the traditional pyramid scheme to emphasize how the processes work together or how vital higher order ones are. By familiarizing themselves with the verbs and abilities associated with each level ("Verb's for Bloom's Taxonomy", 2016.), tutors can employ techniques to Check for Understanding, determine which level the tutee is on, and begin to employ scaffolding techniques to advance the tutee in the cognitive process.

Checking for Understanding. As tutees progress through the six processes of Bloom's Taxonomy (Krathwohl 2002), tutors can choose from a number of techniques to ensure that tutees are ready to move on to higher order thinking. This collection of techniques, often called Checking for Understanding, summarizes a few steps in the Tutor Cycle. This cycle outlines the iterative process that tutors should follow for any tutoring session, be it straight through or forward and back and forward again like a rotary phone (The 10 Steps of Tutoring, n.d.). Beginning with greeting the tutee and following through to a closing and goodbye, the cycle includes three steps where Checking for Understanding can take place. Addressing the Task, Tutee Summary of Content, and Tutee Summary of Underlying Process, steps 6, 7, and 8 respectively are stages when what is referred to as tutoring actually happens. This provides the opportunity for tutors to check in with the tutee. Proper Checking for Understanding prevents ineffective temperature checks where students merely nod in agreement to placate the tutor, or even worse, form no response at all (Fisher & Frey, 2014).

Scaffolding and Zone of Proximal Development. Another framework in which tutors may place tutee progress is along the Zone of Proximal Development (ZPD) (Vygotsky, 1987). Originally, Vygotsky used this zone to describe a child's cognitive development. He theorized that children further develop their cognitive abilities through social interaction. Most notably, however, more can be developed when adult intervention or peer collaboration is included rather than when it is not (Fani & Ghaemi, 2011). In tutoring terms, tutors can assess for a tutee's ZPD and apply intervention techniques to aid in fully developing their cognitive abilities (Albacete et al., 2018). Tutees have a certain level of ability that allows them to complete tasks entirely on their own, and then a bit further that they can complete given proper guidance. Any set of techniques used to bring tutee's up to the tutor's more advanced capabilities, and shrink their ZPD, is called scaffolding (Wood et al., 1976).

Evaluation Instruments. Following synthesis of an instructional hierarchy and parallel design objectives, intellectual skills were evaluated through pre- and post-test questions (see Appendix 5). The questions progress in both difficulty and level of understanding. Earlier questions were multiple choice, requiring memorization of definitions and basic understanding of concepts. Perez (2018) received feedback at the conclusion of her study where tutors requested opportunity to practice what they had learned. As a result, inclusion of such opportunities was vital. The last few questions were short-answer responses, either providing tutors with terms to use to create new scenarios or providing scenarios and asking tutors to synthesize a plan of action for optimal tutee success. To address the second research question in the affective domain, a hierarchy was created using the ARCS model (Keller, 1987; "Theories of Motivation", 2014) (See Appendix 2). Objectives and accompanying survey questions for an attitudinal survey were created as a result (see Appendix 6). Basic demographic questions requested the number of semesters of both tutoring experience and prior training. The second section includes questions to address all the desired attitudes from the hierarchy. Appendix 7 shows the administered attitudinal survey questions in Google Forms.

Project Design Strategies.

Instructional Design. In order to address both cognitive and affective domains in the research questions, two design pathways were taken. The Cognitive Design Pathway began with an instructional analysis, starting with the terminal behavior: Generate appropriate strategies for a given tutoring session. Pre-requisite skills were derived from this to develop the full Instructional Hierarchy (see Appendix 1). With a completed set of entry skills and behaviors, the resulting instructional analysis hierarchy was used to create parallel design objectives (see Appendix 8). The Dick and Carey Model (Dick, Carey & Carey, 2014) was used to reverse design from objectives to corresponding instructional content. The terminal objective therefore became: Given a scenario, tutors will accurately use *Checking for Understanding* to assess a tutee's current level of *Bloom's Taxonomy,* & describe appropriate techniques needed to *scaffold* the tutee to the highest level achievable. To develop the evaluation instrument for this Cognitive Pathway, each objective was first translated into a pre-test question, and then a parallel post-test question (See Appendix 5). For those questions that were of the multiple-choice type, viable answer options were created. Wording and question content, as well as potential answer options, influenced the instructional content to be included in the modules. The process continued by

distilling each pre-post question pair down to the content tutors needed to learn in order to properly answer any evaluation items (see Appendix 9). These questions were added to the chosen LMS, Canvas by Instructure, through its built-in quiz functions (Figure 1). Results were downloaded as a spreadsheet (.csv) or made into a Google Sheets file for analysis. This quiz function is similar to that of Laulima, UH System's current LMS, making it easier for tutors to adapt and learn. The distinction comes from the flexibility of Canvas to embed videos and images. Interspersed media pieces aid in learner attention and engagement addressed by the Affective Design Pathway.

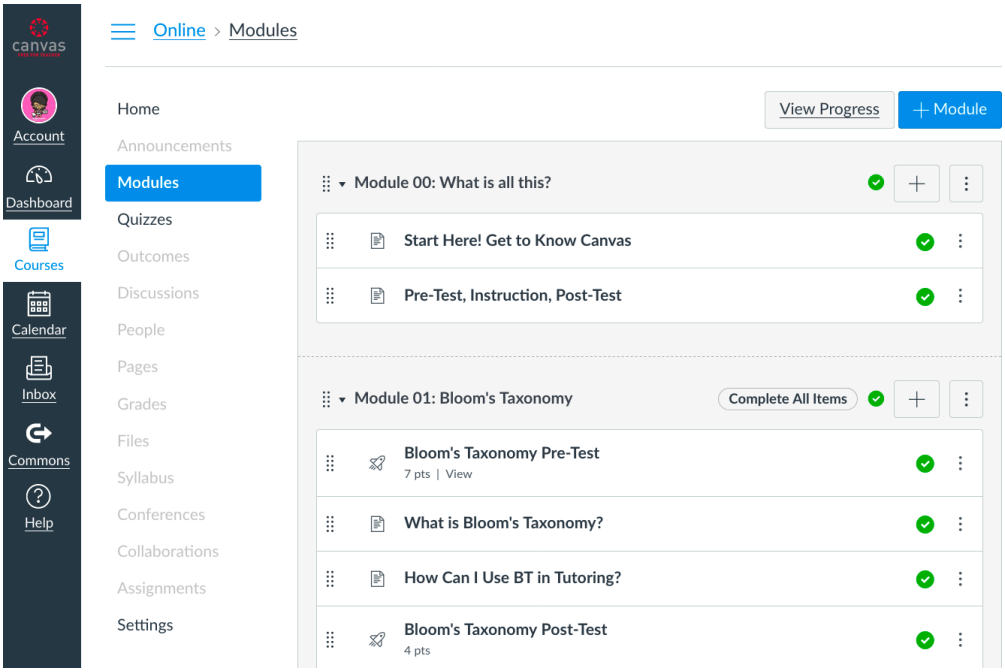

Figure 1. Canvas Modules 02 of 04 with tests.

The Affective Design Pathway began with a similar hierarchy process. Using Keller's ARCS model (Keller, 1987), desired affective behaviors per model component (Attention, Relevance, Confidence, and Satisfaction) were developed (see Appendix 2). The terminal affective behavior was: I feel I can do my job better after training. In order to test for a change in attitude for this and all other desired behaviors, a survey question was created for each behavior. Since Research Question Two looks at the change between face-to-face and online training, the pre- and post-surveys adopted slightly different language to make the distinction. Pre and post-survey questions were transferred to Google Forms (see Appendix 7) due to its compatibility with the University of Hawai‘i GSuite and its familiarity to tutors through surveys distributed by UH System. For ease of collection, results could also be easily downloaded from Google Forms to spreadsheets.

Visual Design. Sketches Zen for iOS and Adonit Jot stylus were used to create a full summary depiction all four topics (Figure 2). From that, two graphics were extracted: one with just Bloom's Taxonomy and Checking for Understanding, and one with just Zone of Proximal Development and Scaffolding. These derivatives were used in their respective modules to provide continuity in instruction. Apple placement on the graphics represents tutee progression

through the learning process, demonstrating that learning may not always occur in a linear fashion.

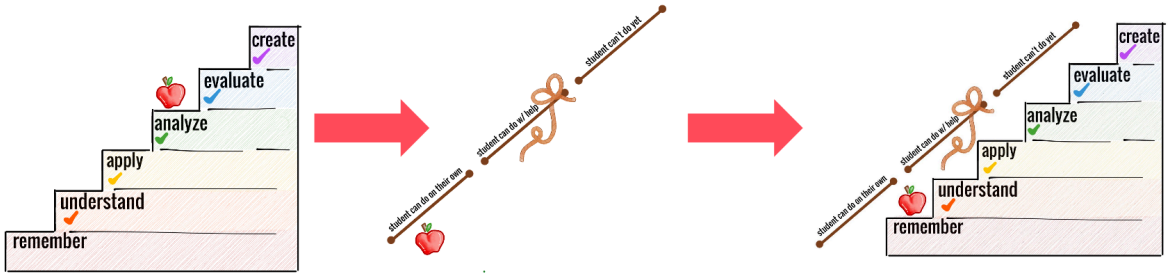

Figure 2. Progression of Summary Graphics from Bloom's Taxonomy + Checking for Understanding, to Scaffolding + Zone of Proximal Development, leading up to the last Summary Graphic including all four topics.

The first and second summary graphics, specifically, are presented in conjunction with other versions of Bloom's Taxonomy and Zone of Proximal Development in their modules as those topics were the two frameworks included in the content. These are the most easily converted into illustrations. Alternate versions have already been present in some capacity to senior tutors during prior training, and therefore served as stimulators for recall of prior learning (Gagne, et al., 2005). Another stimulator was LACey the Apple, also developed on Sketches Zen (Figure 3). LACey guided tutors through each module, providing tips to revisit relevant previous module sections, asking guiding questions, and introducing concepts such as the summary graphics. Videos and other media pieces supplemented larger blocks of text, aiding tutors in comprehension.

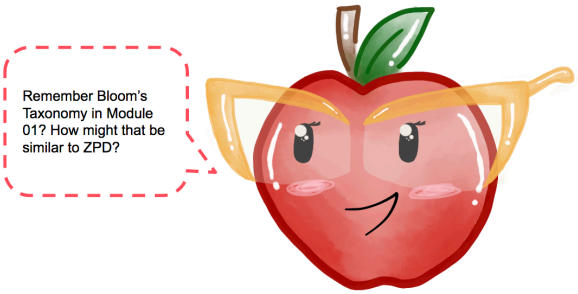

Figure 3. LACey the Apple prompting tutors to review a concept in an earlier module.

E-Learning Design. In designing the modules themselves, Northern Illinois University prepared an alignment of Bloom's Taxonomy and Gagné's Nine Events of Instruction which strongly influenced the module's chronological organization ("Gagné's Nine Events of Instruction", 2016). The aim was to model the four topics directly through the instruction guided by Gagné. Tutor attention was gained (Event 1 of Gagné's 9 Events of Instruction) through use of bright colors, clean negative space, and small blocks of text in comparison to the complementary media. At the start of each module, learning objectives were clearly stated (Event 2). Through LACey (Figure 3) and summary graphics (Figure 2), recall of tutor's prior learning was stimulated (Event 3) while providing a point to self-check for understanding. Content was presented, including vocabulary and ample examples (Event 4), before providing learning guidance (Event 5) in the form of scaffolds such as tables, as well as a list of scaffolds when tutors themselves learn about scaffolding. Per the audience analysis, tutors had varying levels of understanding for all topics, subsequently varying their Zones of Proximal

Development. Provided scaffolds addressed this variation. Performance was elicited through questions posed by LACey, making reference to examples and non-examples to which new knowledge could be associated (Event 6). Since modules were completed asynchronously, feedback was limited to immediate pre- and post-test confirmatory and corrective feedback (Event 7). Feedback was provided in the form of text directly through Canvas. Post-test assessments (Event 8) followed the order of Bloom's Taxonomy, moving from multiple choice questions that address Remembering to measuring the terminal learning objective where tutors were asked to Create their own plan of strategies (Krathwohl, 2002). Appendix 10 outlines test items per module. Finally, to enhance retention and help transfer skills to tutoring appointments (Event 9), the examples and non-examples included subjects routinely offered by the LAC. Further, the connection between summary graphics (Figure 2) found in their respective modules was explicitly stated at the conclusion of Module 03 as a quick reference of the entire instruction.

Procedures. A one-on-one study was conducted to troubleshoot minor things prior to the start date of the rest of the participants. As those finished, the remaining participants were instructed to complete one module per week, including the corresponding pre-test, instruction, and post-test, on Canvas LMS. Since modules were asynchronous, participants could leave and come back as they wished. Each module was a pre-requisite for the next, therefore locking Modules 02 and 03 until Module 01 was completed, and so on. The post-test for Module 03 included a prompt for the terminal objective of assessing a student's needs in a given scenario and creating a plan to successfully advance the student. All four topics had to have been used in the response to earn full points. At the conclusion of the Module 03 post-test, participants were sent a Google Forms attitudinal post-survey via email regarding their instructional experience. When all modules were completed and all surveys were returned, responses were analyzed. Short answer questions were scored using Figure 4.

	Meets (1pt)	**Does Not Meet**
Terms	Term used	Term not used
Techniques	Technique used	Technique not used
Total	2 pts	

Figure 4. Grading rubric for objectives C-F short answer questions.

Results

Of the 13 participants, all 13 completed the pre and post-tests for all three modules and completed the pre and post-surveys. For the one-on-one study, findings were minor and included: duplicated answer options in Module 01 pre-test, broken links to images, and missing images in Module 02 instruction and pre/post-tests. All were addressed and fixed prior to module completion by the remaining participants.

Cognitive Domain. Average test scores for objectives A through B varied in improvement levels between the pre and post-tests. Those questions were designed as multiple choice or true false types. The later question averages improved significantly for objectives C through F (see Appendix 5), which were all short answer responses (Figure 5 & 6).

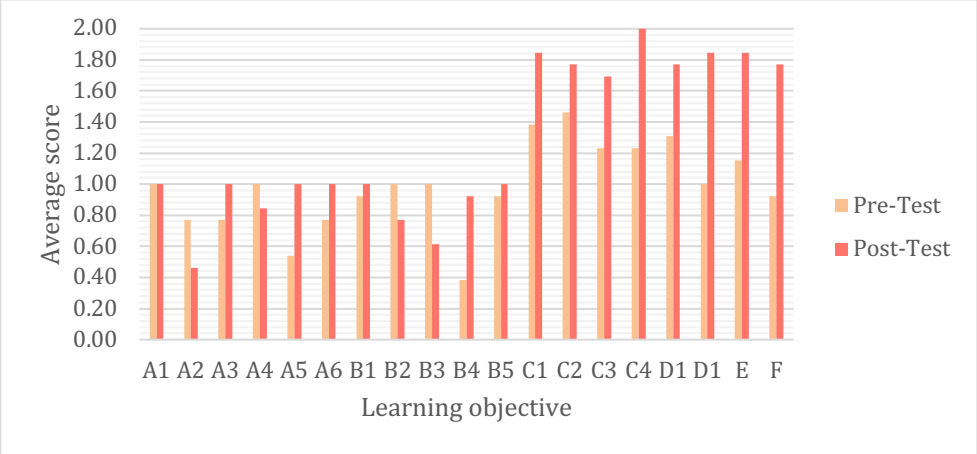

Figure 5. Average test scores per learning objectives by test type. Objectives A-B were out of one point, and C-F were out of two points.

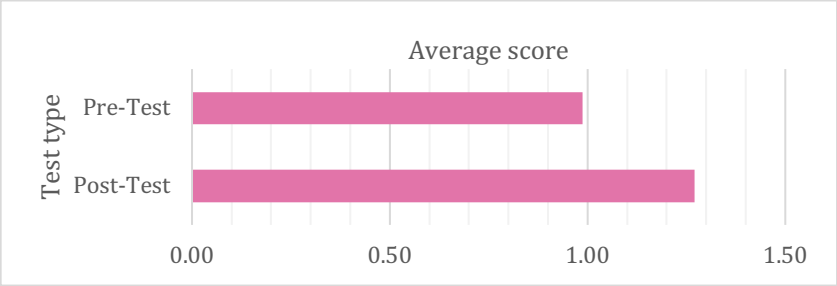

Figure 6. Average test scores by test type (0-2 points).

Affective Domain. Although average ratings before and after online training vary (Figure 7), average ratings overall for Canvas training were slightly higher than for F2F training (Figure 8). Objectives H1, J1, J2, and K1 were the objectives that corresponded to higher ratings for online Canvas training (See Appendix 6).

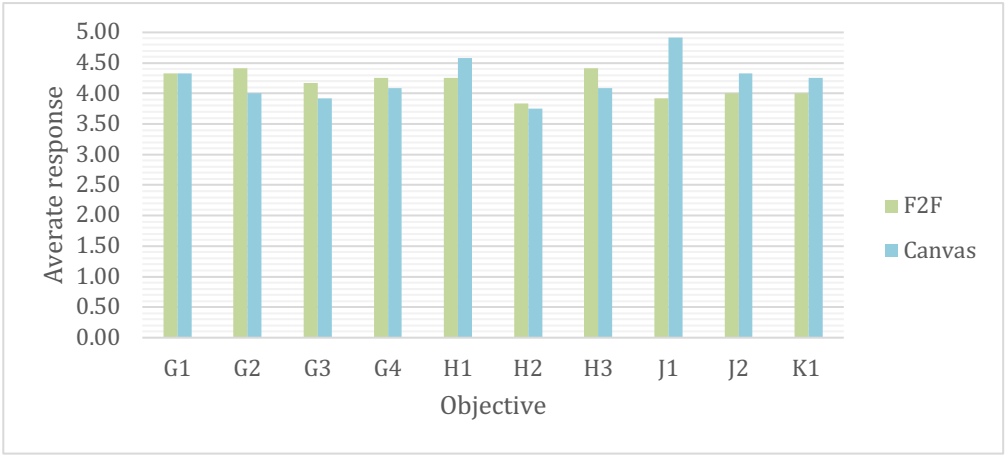

Figure 7. Attitudinal survey responses for training delivery (out of five).

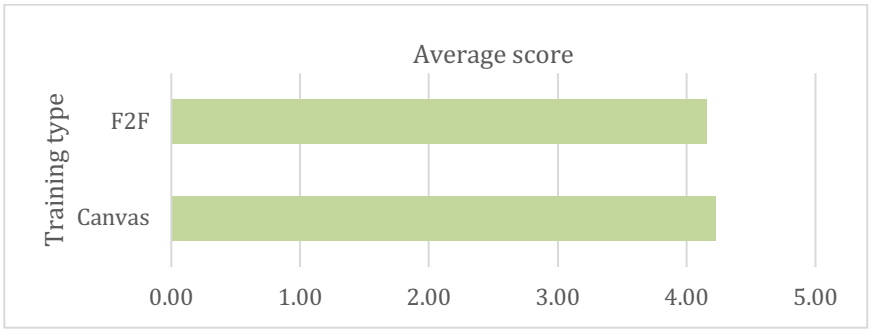

Figure 8. Average attitudinal survey responses by training type (out of five).

Discussion

Findings. Regarding cognitive test results, multiple choice test, which require low-level recognition, showed little to no improvement, while short answer tests, which require high-level recall, showed significant improvement. The tests themselves were designed to mirror Bloom's Taxonomy, beginning with objective, rote memorization questions, scaffolding up to more complex, subjective questions where tutors are able to justify their responses. It is possible that the difference in average short answer questions appeared greater because those test items were worth a possible two points, whereas multiple choice were worth just one. It was, however, quite clear in those short answer submissions that tutors were better able to articulate each term and demonstrate application of corresponding techniques after learning about topics through instruction. The levels of detail and clarity in strategies and description were much deeper in post-test submissions, while pre-test items were either left entirely blank or were filled with just the mention of the topic in a blanket statement of, "I don't know enough about x topic." It is more difficult to guess a short answer than it is to guess a multiple choice.

Regarding survey responses, the objectives for which the average ratings on a 5-point Likert scale improved were H1, J1, J2, and K1. Respectively, these correspond to media relevancy to content, tutor confidence in navigating the platform, tutor confidence in applying learned content to the job, and tutor belief that their job can be done better. Majority of these objectives refer to the tutor and how positively they feel about themselves and their perceived self-efficacy. The other objectives whose averages dropped in the post-test were related to online training and the digital platform. In the open-ended survey text field, tutors expressed discontent with online training for a job like tutoring that demands social interaction. This confirmed initial apprehension about taking the dynamic, discussion-based process from F2F training and attempting to translate it to an online experience.

From this it appears that online training may have increased tutor competency in: Bloom's Taxonomy, Checking for Understanding, Scaffolding, and Zone of Proximal Development (RQ1), and aided in increased self-efficacy. However, attitude toward training as a whole appears mostly unaffected (RQ2), and training has, as suspected, robbed tutors of crucial social interactions that can, as of now, only be experienced in F2F meetings.

1. How does acquisition of training through online modules affect tutor competency in: Bloom's Taxonomy, Checking for Understanding, Scaffolding, and Zone of Proximal Development?

2. How does tutor attitude toward training change after inclusion of online training modules?

Future Revisions. Through the course of conducting this research, a number of notable revisions were gathered. The first is in regard to reminders. Although training is for work and not for class, there was no increase in diligence on behalf of the participants to complete everything. The audience analysis revealed that participants are high-achieving, but an overlooked component of that was the accompanying workload participants have. It proved difficult to ensure each module was completed on time because online training relies on email as the primary means of communication. Usually with F2F training, there is a designated hour where supervisors have guaranteed interaction with staff, providing the opportunity for announcements and reminders. Online training, unfortunately, is limited to how often tutors make a conscious effort to check their devices. Another suggested solution was to offer certificates of completion or digital badges as incentive for training completion. Additionally, some participants only have evening hours and have no need to come in to sign consent forms, etc. Even ensuring that participants successfully completed all participation requirements (signed the consent form, completed each module, filled out both attitudinal surveys) was difficult because these things were all delivered in different ways. A possible solution is to embed the consent form even attitudinal surveys directly into the modules; the research process could be streamlined this way.

An operational note was that some post-tests didn't register responses properly. Troubleshooting Canvas functions should be done more extensively in the future, and this includes testing on multiple devices. Finally, further analysis of gathered data is recommended to discover any correlations between tutor test scores and survey responses, and semesters of prior training and experience.

Further Research. As discussed in the literature review, accessibility is considered one of three parts to a balanced online course development alongside pedagogy and student readiness (van Rooij & Zirkle, 2016). Given further time, this and Universal Design is recommended for future iterations. Additionally, as exemplified by the LE, working with students with additional learning needs is also recommended for potential inclusion and further enhancement of Online Tutor Training. These other student support services such as alternate tutoring services and accommodations could easily supplement the academic assistance tutors create a complete learning experience. Further research into visual design principles is desired since many visual decisions were made intuitively from the researcher's prior experiences. Of particular interest are Richard Mayer's (2008) coherency and consistency principles, and intentional design for decreased cognitive load and extraneous processing on non-content material (Kramer, Olson, & Walker, 2018).

Conclusion

In pursuit of increased tutor competency in basic educational topics (including Bloom's Taxonomy, Checking for Understanding, Scaffolding, and Zone of Proximal Development), and in pursuit of changing attitudes toward a required weekly training, this research project aimed to consolidate and document training curriculum, and design and develop online modules for a fresh take on a job requisite. Current tutor staff had mixed levels of understanding of all topics,

as well as mixed attitudes toward training as a whole. Both the target audience and peer program training curricula were extensively analyzed to choose the above-named topics as subject matter. With the guidance of Gagné's Nine Events of Instruction for instructional design, and implementation of topics as both content as well as instructional strategies, modules were designed and measured as effective guides for tutor development. Although there were varying levels of positive results and perhaps at the cost of low social interactions, it is most apparent that tutors should be afforded the opportunity to synthesize short answer responses to hypothetical but realistic scenarios, and that a formal training such as this has provided fundamental job confidence in the tutor staff. It is the hope that this project can serve as a point for future training expansion and can bring the LAC one step closer to achieving ITTPC, a certification that the Center has sought to achieve for many years.

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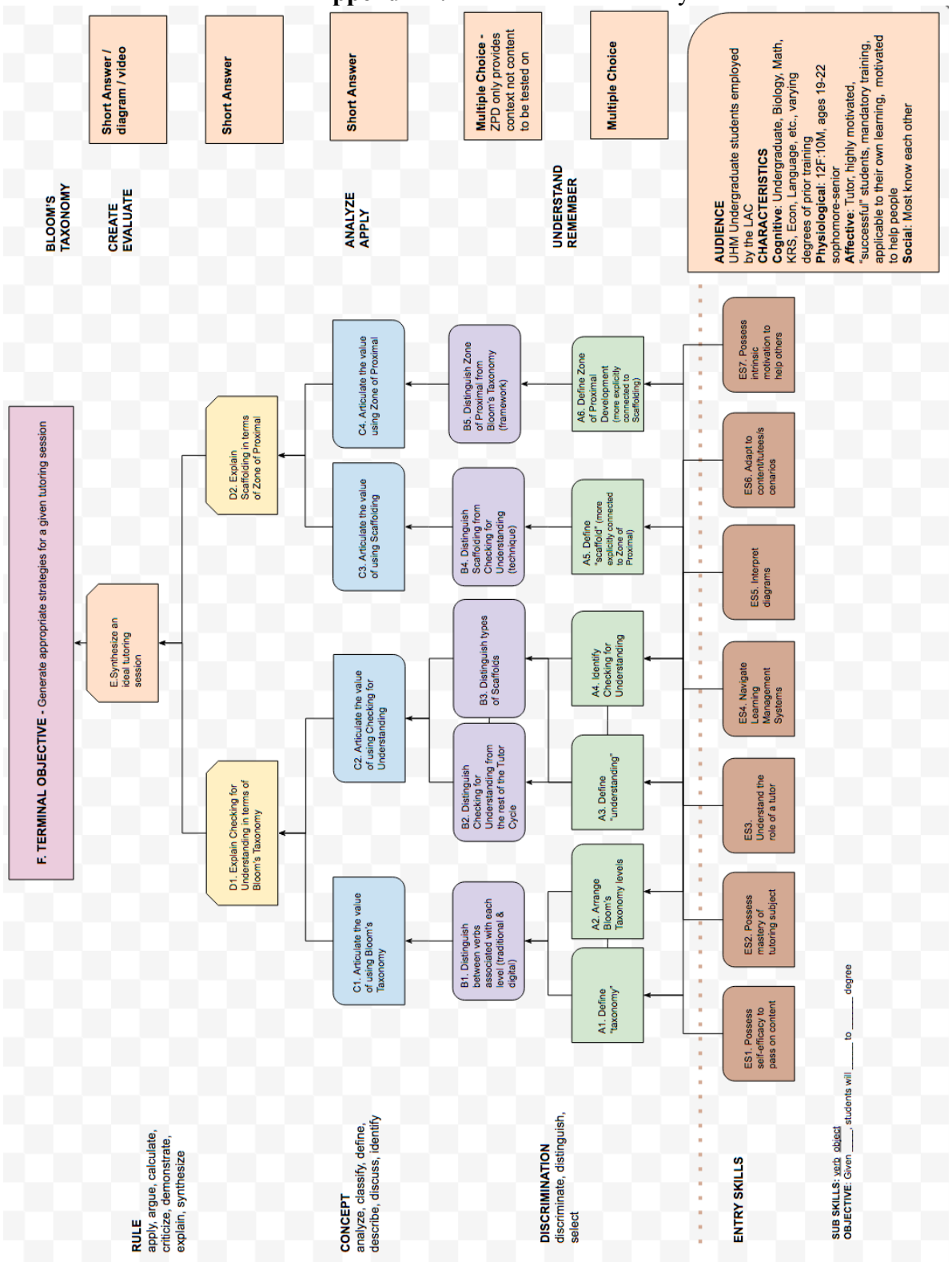
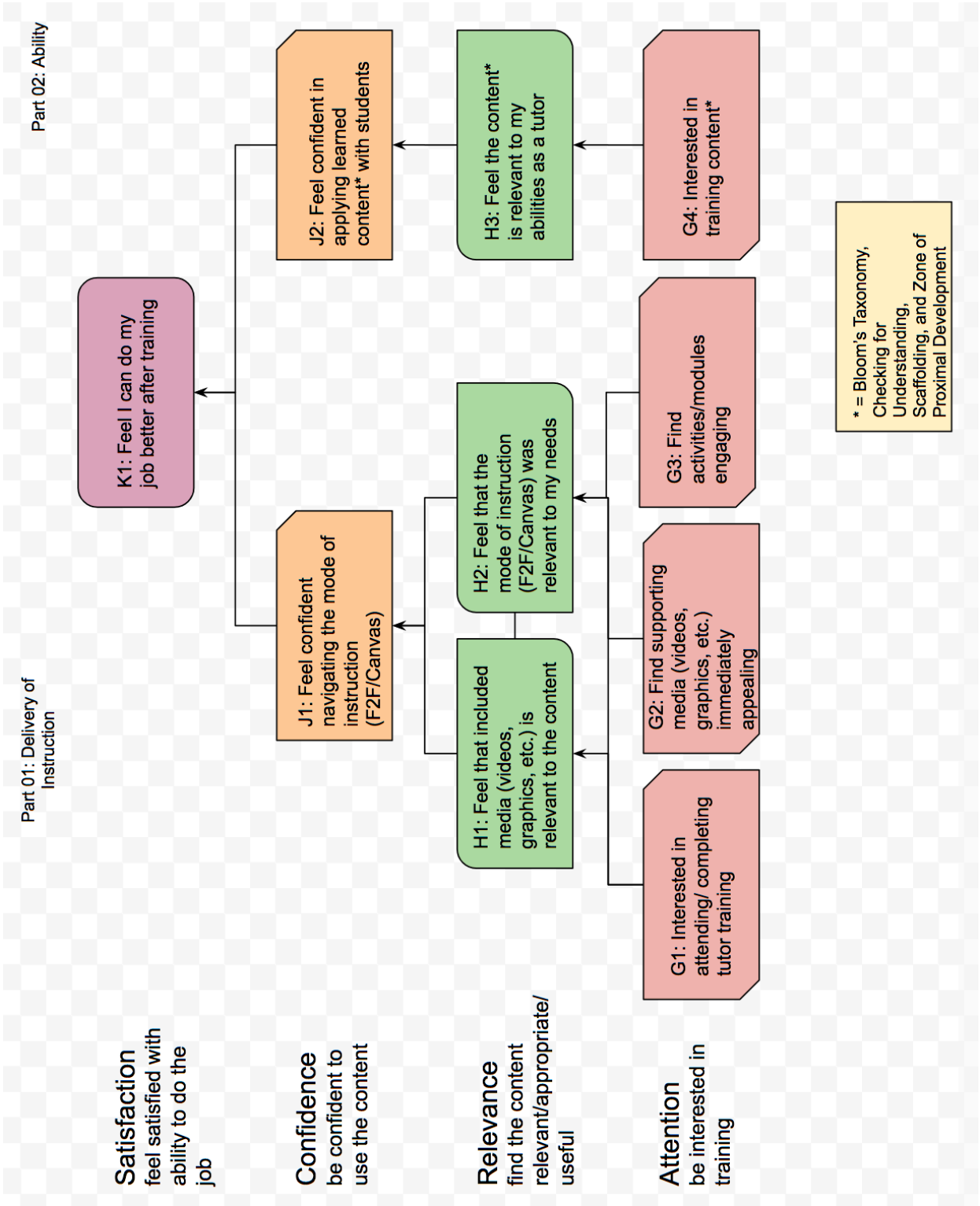
Appendix 1. Instructional Hierarchy



Appendix 2. ARCS Model Hierarchy



Appendix 3. Recruitment Email

Recruitment Email

Hey Team!

As many of you know, I'm nearing the end of my Master's program. As part of a requirement for this completion, I am I'm asking for your help in participating in a research project I'm doing. The purpose of this project is to evaluate an online tutor training for the Learning Assistance Center (LAC). This could also bring the LAC a step closer to acquiring Level-1 CRLA certification. I'm asking you to participate since you are a tutor here at the LAC and therefore both my target audience and potential participants. I would greatly appreciate your willingness to participate as your feedback will help to improve the modules as well as training for future tutors!

If you choose to participate, please sign and date the attached consent form and return it to me either by email or in person. If you have any questions regarding the study, please feel free to email me or ask me in person at any time.

Thanks you!
Shauna Sibonga, Student Investigator
Program Assistant
Learning Assistance Center
Office of Undergraduate Education
University of Hawai'i at Mānoa
shaunaks@hawaii.edu

Appendix 4. Consent Form

University of Hawai'i
Consent to Participate in a Research Project
Shauna Sihanna, Student Investigator
Online Tutor Training: An Instructional Design Project

Aloha! My name is Shauna and you are invited to take part in a research study. I am a graduate student at the University of Hawai'i at Mānoa in the Department of Learning Design and Technology. As part of the requirements for earning my graduate degree, I am doing a research project.

What am I being asked to do?
If you participate in this project, you will be asked to fill out 2 surveys and 6 tests (3 pre-tests, and 3 post-tests).

Taking part in this study is your choice.
Your participation in this project is completely voluntary. You may stop participating at any time. If you stop being in the study, there will be no penalty or loss to you. Your choice to participate or not participate will not affect your rights work at the UHM Learning Assistance Center.

Why is this study being done?
The purpose of this instructional design project is to create and evaluate a freshly designed online training for undergraduate tutors at the Learning Assistance Center (LAC). and serves to bring the LAC a step closer to acquiring Level-1 CRLA certification. I'm asking you to participate since you are a tutor at the LAC.

What will happen if I decide to take part in this study?
The first survey will consist of 2 demographic questions and 10 rating questions regarding tutor training. The second will also include 10 rating questions, without the 2 demographic questions. It will take no more than 5 minutes each. The survey questions will include questions like, "I was interested in completing tutor training". The survey is accessed through Google Forms to which I will provide you a link.

During training, the pre and post-test quizzes results reflect the success of the designed instruction to help you learn. and does not in any way aim to measure your abilities to perform academically.

What are the risks and benefits of taking part in this study?
I believe there is little risk to you for participating in this research project. You may become stressed or uncomfortable answering any of the survey questions. If you do become stressed or uncomfortable, you can skip the question or take a break. You can also stop taking the survey or you can withdraw from the project altogether.

There will be no direct benefit to you for participating in this survey. The results of this project may help improve tutor training for the LAC to benefit future tutors.

Confidentiality and Privacy:
I will not ask you for any personal information in surveys, such as your name or address. Please do not include any personal information in your survey responses. I will keep all study data secure and encrypted on a password protected computer. Only my University of Hawai'i advisor

1

Consent Form – V. 11/10/18

and I will have access to the information. Other agencies that have legal permission have the - right to review research records. The University of Hawai'i Human Studies Program has the right to review research records for this study.

Future Research Studies:
Even after removing identifiers, the data from this study will not be used or distributed for future research studies.

Questions: If you have any questions about this study, please email me at shaunaks@hawaii.edu. You may also contact my faculty advisor, Dr. Curtis Ho, at curtis@hawaii.edu. You may contact the UH Human Studies Program at 808 956 5007 or uhirb@hawaii.edu to discuss problems, concerns and questions, obtain information, or offer input with an informed individual who is unaffiliated with the specific research protocol. Please visit http://go.hawaii.edu/iRd for more information on your rights as a research participant.

To Access the Survey: Please click the Google Forms link in the original email and login with your UH Login. Going to the first page of the survey implies your consent to participate in this study.

Print Name _____ Date _____

Signature _____

Please print or save a copy of this page for your reference.

Thank you!

Appendix 5. Pre- and Post-Test Questions

Design Objective	Pre-test	Post-test
Given 4 definitions, tutors will choose the definition that best describes "taxonomy"	Choose the definition below that best describes "taxonomy" a. A scheme of classification b. A mental grasp c. The difference between what a learner can do without help and what he or she can achieve with guidance and encouragement from a skilled partner d. Tool used to advance a learner	Choose the definition below that best describes "taxonomy" a. The difference between what a learner can do without help and what he or she can achieve with guidance and encouragement from a skilled partner b. A mental grasp c. A scheme of classification d. Tool used to advance a learner
Given 6 levels, tutors will choose the correct order from lowest to highest level of understanding	Choose the correct order of Bloom's Taxonomy from *lowest to highest* level of thinking a. Create, evaluate, analyze, apply, understand, remember b. Evaluate, apply, analyze, remember, understand, create c. Understand, evaluate, apply, analyze, create, remember d. Remember, understand, apply, analyze, evaluate, create	Choose the correct order of Bloom's Taxonomy from *highest to lowest* level of thinking a. Understand, evaluate, apply, analyze, create, remember b. Create, evaluate, analyze, apply, understand, remember c. Remember, understand, apply, analyze, evaluate, create d. Evaluate, apply, analyze, remember, understand, create
Given 4 definitions, tutors will choose the definition that best describes "understanding"	Choose the definition below that best describes "understanding" in terms of education a. A mental grasp b. The difference between what a learner can do without help and what he or she can achieve with guidance and encouragement from a skilled partner c. Tool used to advance a learner d. A scheme of classification	Choose the definition below that best describes "understanding" in terms of education a. Tool used to advance a learner b. The difference between what a learner can do without help and what he or she can achieve with guidance and encouragement from a skilled partner c. A scheme of classification d. A mental grasp
Given 4 short scenarios, tutors will pick the one that correctly describes when a tutor is Checking for Understanding	From these 4 short scenarios, choose the one that correctly describes a tutor who is checking for understanding. a. Tutor moves quickly through the lesson because the tutee is nodding along and smiling b. Tutor pauses to check the time elapsed in the session c. Tutor asks tutee to do a problem on the board while thinking aloud d. Tutor corrects tutees quiz without explanation	From these 4 short scenarios, choose the one that correctly describes a tutor who is incorrectly checking for understanding. a. Tutor asks if tutee understands, tutee nods, and tutor moves on to next step b. Tutor asks tutee to come up with their own example problem for tutor to solve c. Tutor asks tutee to do a problem on the board while thinking aloud d. Tutor asks tutee to fill in as many blanks as possible on a partially incomplete diagram
Given 4 definitions, tutors will choose the definition that best describes "scaffold"	From the definitions below, choose 1 that best describes "scaffold" in terms of education: a. Tool used to advance a learner b. A mental grasp	From the definitions below, choose 1 that best describes "scaffold" in terms of education: a. A mental grasp b. A scheme of classification c. Tool used to advance a learner

	c. The difference between what a learner can do without help and what he or she can achieve with guidance and encouragement from a skilled partner d. A scheme of classification	d. The difference between what a learner can do without help and what he or she can achieve with guidance and encouragement from a skilled partner
Given 4 definitions, tutors will choose the definition that best describes "Zone of Proximal Development"	From the definitions below, choose 1 that best describes "ZPD" a. The difference between what a learner can do without help and what he or she can achieve with guidance and encouragement from a skilled partner b. A mental grasp c. Tool used to advance a learner d. A scheme of classification	From the definitions below, choose 1 that best describes "ZPD" a. The difference between what a learner can do without help and what he or she can achieve with guidance and encouragement from a skilled partner b. Tool used to advance a learner c. A scheme of classification d. A mental grasp
Given 1 level of Bloom's Taxonomy and 4 verbs, tutors will correctly pair the appropriate verb with its level	For the Remember Level of Bloom's Taxonomy, the appropriate verb is: a. Indicate b. Recall c. Estimate d. Sketch	For the Create level of Bloom's Taxonomy, the appropriate verb is: a. Judge b. Discuss c. Invent d. Classify
Given an incomplete tutor cycle, tutors will correctly identify the three steps when Checking for Understanding would occur	Circle the letter that corresponds to the steps when Checking for Understanding would occur. *-Tutor Cycle with missing info-* A B C D	Circle the letter that corresponds to the steps when Checking for Understanding would occur. *-Tutor Cycle with missing info-* A B C D
Given 1 technique, tutors will state if it can be classified as one of the Checking for Understanding techniques discussed: true or false	True or false, creating a Mind Map is a form of Checking for Understanding discussed in the module:	True or false, explaining the process using an analogy is a form of Checking for Understanding discussed in the module:
Given 4 terms, tutors will choose one that is considered a scaffold that was discussed in the module	From the list below, choose 1 that is a potential scaffold discussed in the module: a. Handouts b. Graph paper c. A mental grasp d. Attitudes	From the list below, choose 1 that is *not* considered a scaffold discussed in the module: a. Flow charts b. Hints c. Graph Paper d. Handouts
Given 2 diagrams, tutors will correctly label them with either Zone of Proximal Development, or Bloom's Taxonomy	Label the following diagrams either Zone of Proximal Development or Bloom's Taxonomy. *Stair depiction of ZPD* *Flower depiction of Bloom's Taxonomy*	Label the following diagrams either Zone of Proximal Development or Bloom's Taxonomy. *Running track depiction of ZPD* *Cog depiction of Bloom's Taxonomy*
Given a scenario, tutors will state the value of Bloom's Taxonomy for the tutee	Based on the following scenario, state why using Bloom's Taxonomy is beneficial for the tutee: Your tutee today needs help with learning how to solve algebraic equations. After an hour they say, "okay yep I can solve it, next question!"	Based on the following scenario, state why using Bloom's Taxonomy is beneficial for the tutee: Your tutee today needs help with learning how to solve algebraic equations. As soon as the appointment begins they say, "I don't know anything sooo yeah..."

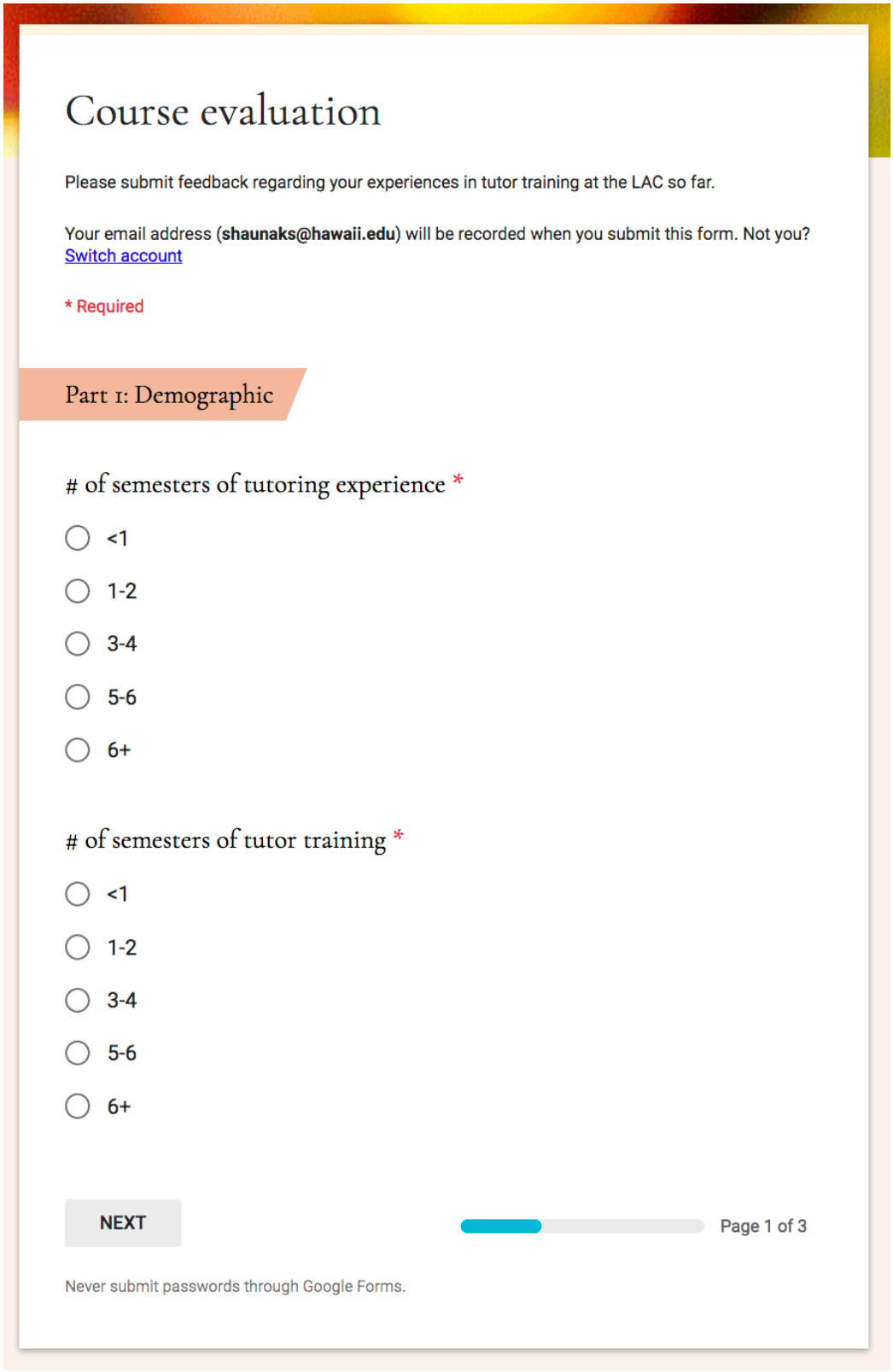
Given a scenario, tutors will state the value of Checking for Understanding for the tutee	Based on the following scenario, state why using Checking for Understanding is beneficial for the tutee: Your tutee today needs help with learning how to solve algebraic equations. After an hour they say, “okay yep I can solve it, next question!”	Based on the following scenario, state why using Checking for Understanding is beneficial for the tutee: Your tutee today needs help with learning how to solve algebraic equations. As soon as the appointment begins they say, “I don’t know anything sooo yeah...”
Given a scenario, tutors will state the value of Scaffolding for the tutee	Based on the following scenario, state why using Scaffolding is beneficial for the tutee: Your tutee today needs help with learning how to solve algebraic equations. After an hour they say, “okay yep I can solve it, next question!”	Based on the following scenario, state why using Scaffolding is beneficial for the tutee: Your tutee today needs help with learning how to solve algebraic equations. As soon as the appointment begins they say, “I don’t know anything sooo yeah...”
Given a scenario, tutors will state the value of Zone of Proximal Development for the tutee	Based on the following scenario, state why using Zone of Proximal Development is beneficial for the tutee: : Your tutee today needs help with learning how to solve algebraic equations. After an hour they say, “okay yep I can solve it, next question!”	Based on the following scenario, state why using Zone of Proximal Development is beneficial for the tutee: : Your tutee today needs help with learning how to solve algebraic equations. As soon as the appointment begins they say, “I don’t know anything sooo yeah...”
Given a diagram of Bloom’s Taxonomy, tutors will accurately explain the concept of Checking for Understanding, which include references to the levels of Bloom’s Taxonomy.	Explain the concept of Checking for Understanding. You must also refer to parts of the accompanying Bloom’s Taxonomy diagram in your explanation. *Orange depiction of Bloom’s Taxonomy*	Explain the concept of Checking for Understanding. You must also refer to parts of the accompanying Bloom’s Taxonomy diagram in your explanation. *Flower depiction of Bloom’s Taxonomy*
Given a diagram of the Zone of Proximal Development, tutors will accurately explain the concept of Scaffolding, which include references parts of the Zone of Proximal Development.	Explain the concept of Scaffolding. You must also refer to parts of the accompanying Zone of Proximal Development diagram in your explanation. *Stairs depiction of ZPD*	Explain the concept of Scaffolding. You must also refer to parts of the accompanying Zone of Proximal Development diagram in your explanation. *Running track depiction of ZPD*
Given a word bank including Bloom’s Taxonomy, Checking for Understanding, Scaffolding, Zone of Proximal Development: tutors will synthesize an ideal tutoring session using those terms.	Using 4 topics [Bloom’s Taxonomy, Checking for Understanding, Scaffolding, Zone of Proximal Development] create an ideal tutoring session. You must include all 4 terms in your description. Remember that only your application of the 4 topics will be graded, but feel free to consider other topics as applicable to your scenario (self-efficacy, motivation, etc.)	Using the 4 topics [Bloom’s Taxonomy, Checking for Understanding, Scaffolding, Zone of Proximal Development] create an ideal tutoring session. You must include all 4 terms in your description. Remember that only your application of the 4 topics will be graded, but feel free to consider other topics as applicable to your scenario (self-efficacy, motivation, etc.)
Given a scenario, tutors will accurately use *Checking for Understanding* to assess a tutee’s current level of	*Diagram of Blood Flow* You begin an appointment with a student. The subject is anatomy and physiology 142, and your tutee is a pre-nursing student working on learning	*Diagram of Nervous System Cells* Your first student of the day is an anatomy and physiology 141 student. She is a pre-nursing major learning how to identify the cells of the nervous

Bloom's Taxonomy, & describe appropriate techniques needed to *scaffold* the tutee to the highest level achievable.	about the flow of blood throughout the body. He got a C on his last lab quiz. Based on your knowledge of Bloom's Taxonomy, Checking for Understanding, Scaffolding, and Zone of Proximal Development, use the space below to assess your tutee's current level of understanding, and describe appropriate techniques needed to scaffold them to the highest level achievable. Remember that only your application of the 4 topics will be graded, but feel free to consider other topics as applicable to your rationale (self-efficacy, motivation, etc.)	system. She's doing fairly well in lecture but wants to get the A. Based on your knowledge of Bloom's Taxonomy, Checking for Understanding, Scaffolding, and Zone of Proximal Development, use the space below to assess your tutee's current level of understanding, and describe appropriate techniques needed to scaffold them to the highest level achievable. Remember that only your application of the 4 topics will be graded, but feel free to consider other topics as applicable to your rationale (self-efficacy, motivation, etc.)

Appendix 6. Attitudinal Survey Questions

Objective	Pre-Survey	Post-Survey
G1: Interested in attending/ completing tutor training	I am interested in attending tutor training.	I was interested in completing tutor training.
G2: Find supporting media (videos, graphics, etc.) immediately appealing	I find supporting media (videos, graphics, etc.) immediately appealing.	I found supporting media (videos, graphics, etc.) immediately appealing.
G3: Find activities/modules engaging	I find activities engaging.	I found modules engaging.
G4: Interested in training content*	I am interested in training content.	I was interested in training content.
H1: Feel that included media (videos, graphics, etc.) is relevant to the content	I feel that included media (videos, graphics, etc.) is relevant to content.	I felt that included media (videos, graphics, etc.) was relevant to content.
H2: Feel that the mode of instruction (F2F/Canvas) was relevant to my needs	I feel that face-to-face training is relevant to my needs.	I felt that Canvas training was relevant to my needs.
H3: Feel the content* is relevant to my abilities as a tutor	I feel the content is relevant to my abilities as a tutor.	I felt the content was relevant to my abilities as a tutor.
J1: Feel confident navigating the mode of instruction (F2F/Canvas)	I feel confident participating in training activities.	I feel confident navigating Canvas activities on my own.
J2: Feel confident in applying learned content* with students	I feel confident applying learned content with my tutees.	I feel confident applying learned content with my tutees.
K1: Feel I can do my job better after training	I feel that I can do my job better after training.	I feel that I can do my job better after Canvas training.

Appendix 7. Google Forms



Course evaluation

Please submit feedback regarding your experiences in tutor training at the LAC so far.

Your email address (**shaunaks@hawaii.edu**) will be recorded when you submit this form. Not you?
Switch account

* Required

Part 1: Demographic

of semesters of tutoring experience *

- <1
- 1-2
- 3-4
- 5-6
- 6+

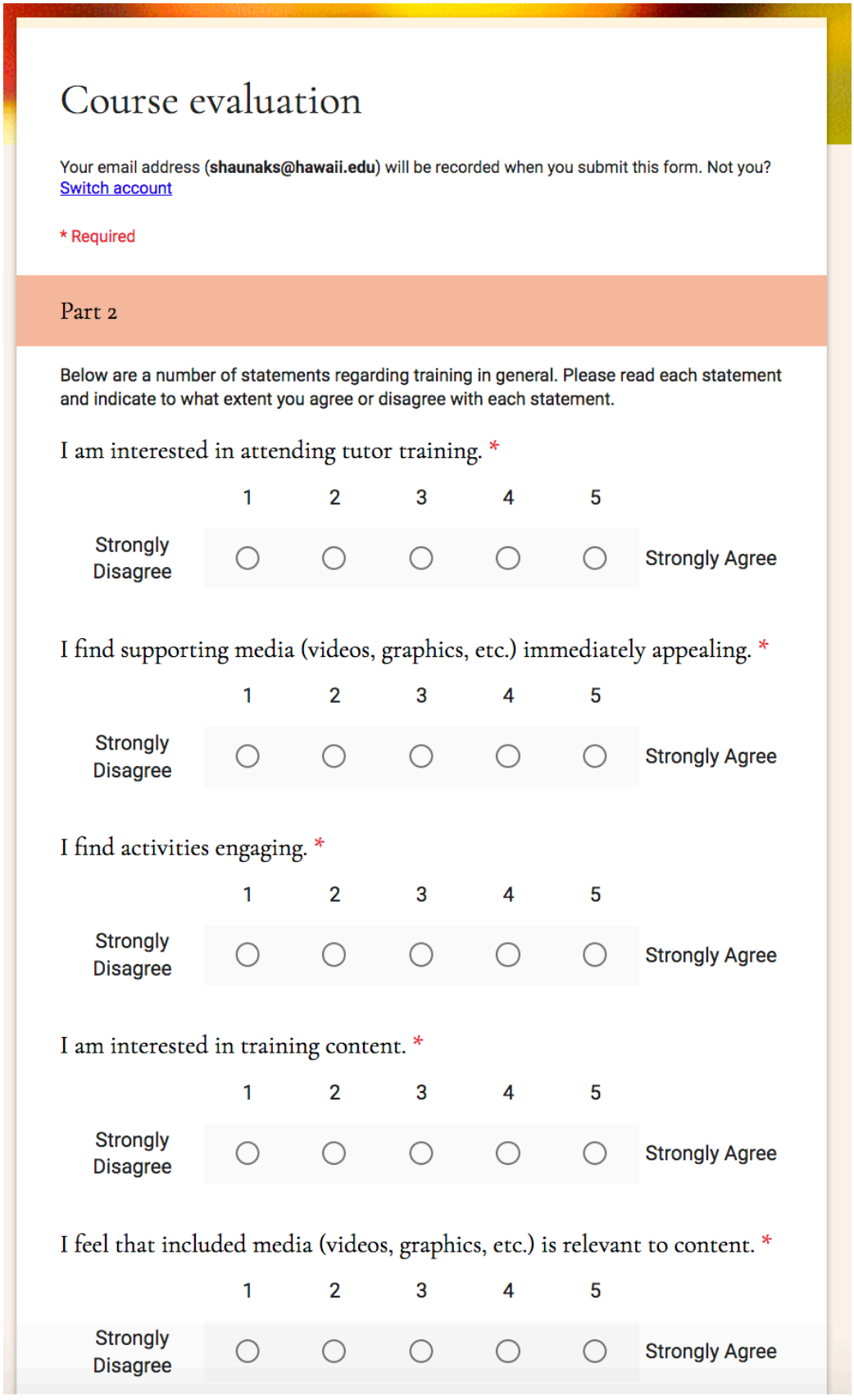
# of semesters of tutor training *

- <1
- 1-2
- 3-4
- 5-6
- 6+

NEXT

Page 1 of 3

Never submit passwords through Google Forms.



Course evaluation

Your email address (**shaunaks@hawaii.edu**) will be recorded when you submit this form. Not you? Switch account

* Required

Part 2

Below are a number of statements regarding training in general. Please read each statement and indicate to what extent you agree or disagree with each statement.

I am interested in attending tutor training. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I find supporting media (videos, graphics, etc.) immediately appealing. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I find activities engaging. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I am interested in training content. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I feel that included media (videos, graphics, etc.) is relevant to content. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I feel that face-to-face training is relevant to my needs. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I feel the content is relevant to my abilities as a tutor. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I feel confident participating in training activities. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I feel confident applying learned content with my tutees. *

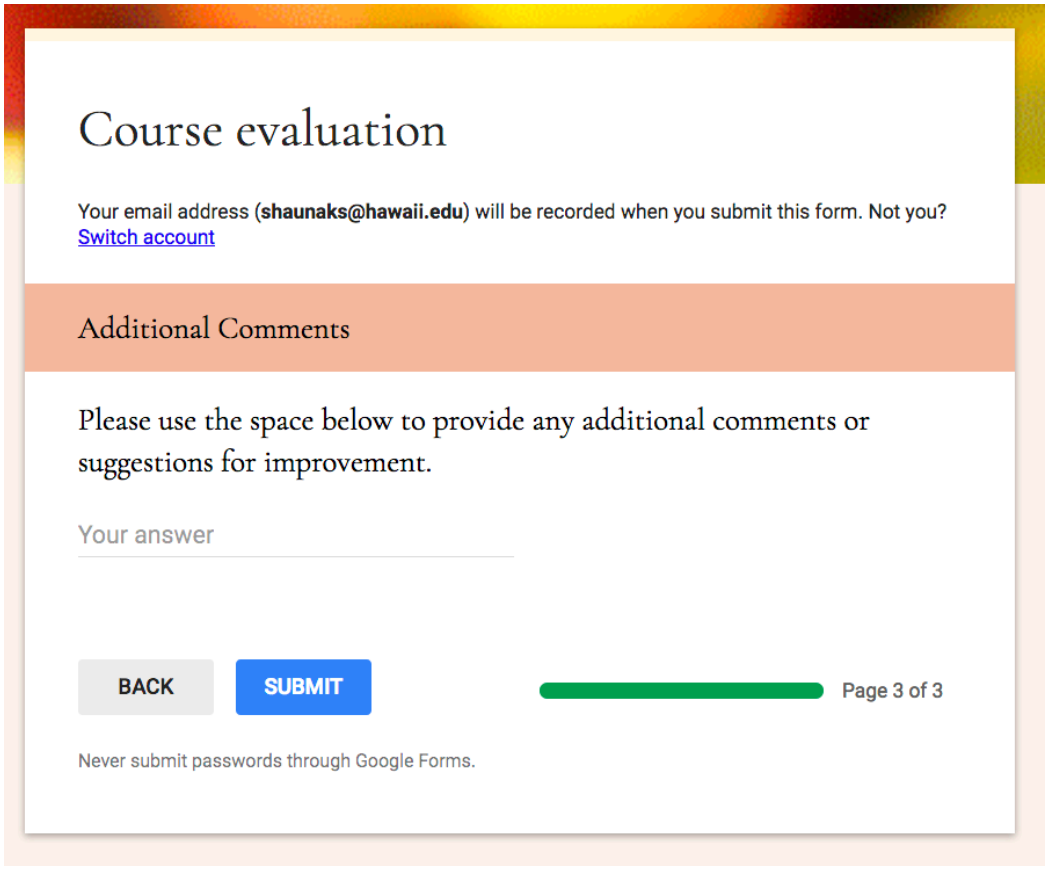
	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

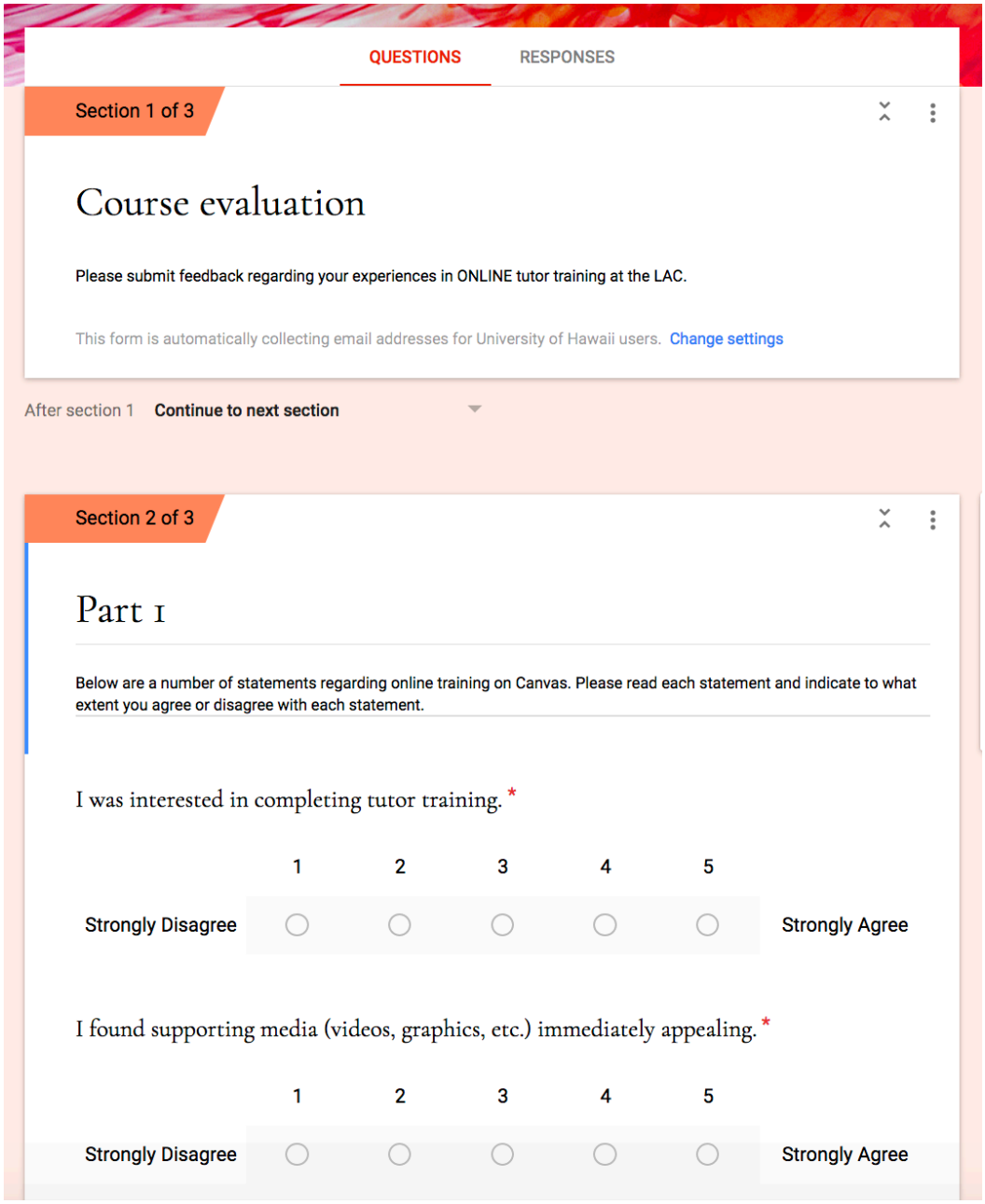
I feel that I can do my job better after training. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

BACK NEXT Page 2 of 3

Never submit passwords through Google Forms.


Course evaluation
Your email address (shaunaks@hawaii.edu) will be recorded when you submit this form. Not you?
Switch account
Additional Comments
Please use the space below to provide any additional comments or suggestions for improvement.
Your answer
BACK
SUBMIT
Page 3 of 3
Never submit passwords through Google Forms.


QUESTIONS
RESPONSES
Section 1 of 3
Course evaluation
Please submit feedback regarding your experiences in ONLINE tutor training at the LAC.
This form is automatically collecting email addresses for University of Hawaii users. Change settings
After section 1 Continue to next section
Section 2 of 3
Part 1
Below are a number of statements regarding online training on Canvas. Please read each statement and indicate to what extent you agree or disagree with each statement.
I was interested in completing tutor training. *
1 2 3 4 5
Strongly Disagree
Strongly Agree
I found supporting media (videos, graphics, etc.) immediately appealing. *
1 2 3 4 5
Strongly Disagree
Strongly Agree

I found modules engaging. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I was interested in training content. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I felt that included media (videos, graphics, etc.) was relevant to content. *

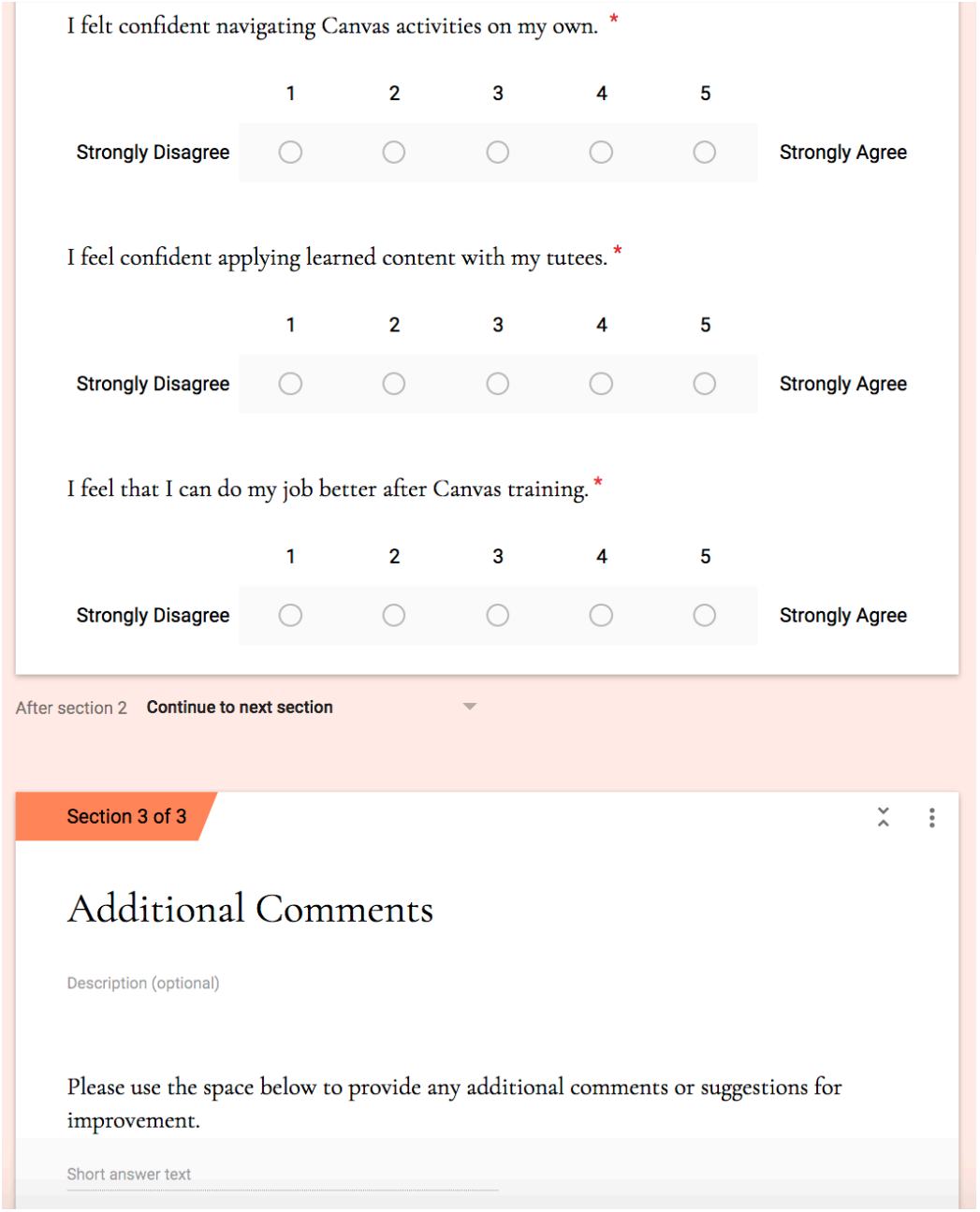
	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I felt that Canvas training was relevant to my needs. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I felt the content was relevant to my abilities as a tutor. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree



I felt confident navigating Canvas activities on my own. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I feel confident applying learned content with my tutees. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I feel that I can do my job better after Canvas training. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

After section 2 **Continue to next section**

Section 3 of 3

Additional Comments

Description (optional)

Please use the space below to provide any additional comments or suggestions for improvement.

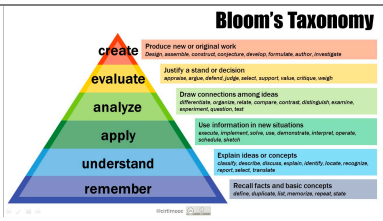
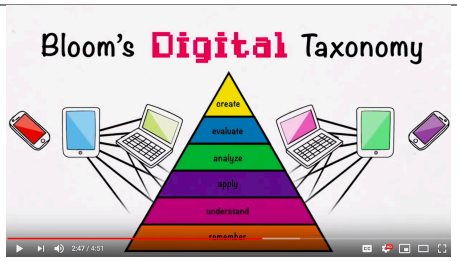
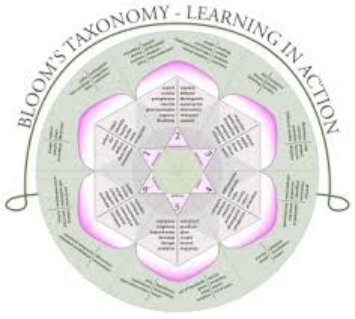
Short answer text

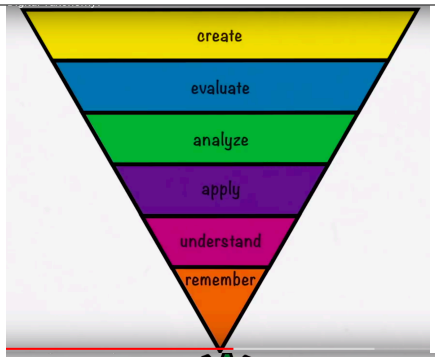
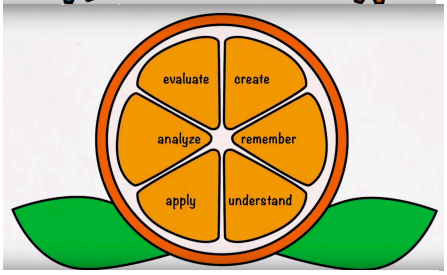
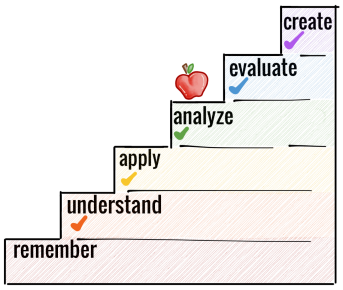
Appendix 8. Design Objectives

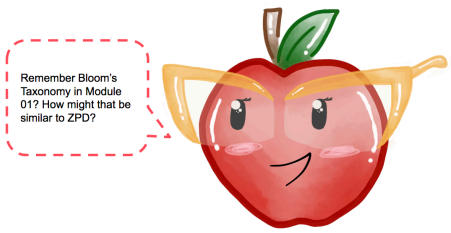
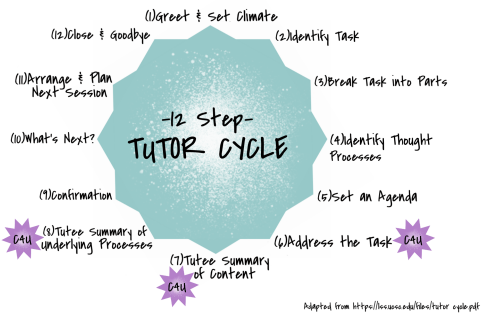
#	Subskill / Behavior	Design Objective
A1	Define “taxonomy”	Given 4 definitions, tutors will choose the definition that best describes “taxonomy”
A2	Arrange Bloom’s Taxonomy levels	Given 6 levels, tutors will choose the correct order from lowest to highest level of understanding
A3	Define “understanding”	Given 4 definitions, tutors will choose the definition that best describes “understanding”
A4	Identify Checking for Understanding	Given 4 short scenarios, tutors will pick the one that correctly describes when a tutor is Checking for Understanding
A5	Define “scaffold” (more explicitly connected to Zone of Proximal)	Given 4 definitions, tutors will choose the definition that best describes “scaffold”
A6	Define Zone of Proximal Development(more explicitly connected to Scaffolding)	Given 4 definitions, tutors will choose the definition that best describes “Zone of Proximal Development”
B1	Distinguish between verbs associated with each level (traditional & digital)	Given 1 level of Bloom’s Taxonomy and 4 verbs, tutors will correctly pair the appropriate verb with its level
B2	Distinguish Checking for Understanding from the rest of the Tutor Cycle	Given an incomplete tutor cycle, tutors will correctly identify the Checking for Understanding phase
B3	Distinguish between techniques used to Check for Understanding	Given 1 technique, tutors will state if it can be classified as one of the Checking for Understanding techniques discussed: true or false
B4	Distinguish types of scaffolds	Given 4 terms, tutors will choose one that is considered a scaffold that was discussed in the module
B5	Distinguish Zone of Proximal from Bloom’s Taxonomy (framework)	Given 2 diagrams, tutors will correctly label them with either Zone of Proximal Development, or Bloom’s Taxonomy
C1	Articulate the value of using Bloom’s Taxonomy	Given a scenario, tutors will state the value of Bloom’s Taxonomy for the tutee
C2	Articulate the value of using Checking for Understanding	Given a scenario, tutors will state the value of Checking for Understanding for the tutee
C3	Articulate the value of using Scaffolding	Given a scenario, tutors will state the value of Scaffolding for the tutee
C4	Articulate the value using Zone of Proximal	Given a scenario, tutors will state the value of Zone of Proximal Development for the tutee
D1	Explain Checking for Understanding in terms of Bloom’s Taxonomy	Given a diagram of Bloom’s Taxonomy, tutors will accurately explain the concept of Checking for Understanding, which include references to the levels of Bloom’s Taxonomy
D2	Explain Scaffolding in terms of Zone of Proximal	Given a diagram of the Zone of Proximal Development, tutors will accurately explain the concept of Scaffolding, which include references parts of the Zone of Proximal Development. .

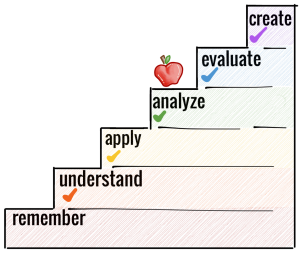
E	Synthesize an ideal tutoring session	Given a word bank including Bloom's Taxonomy, Checking for Understanding, Scaffolding, Zone of Proximal Development: tutors will synthesize an ideal tutoring session using those terms.
F	**TERMINAL OBJECTIVE -** Generate appropriate strategies for a given tutoring session	Given a scenario, tutors will accurately use Checking for Understanding to assess a tutee's current level of Bloom's Taxonomy, and describe appropriate techniques needed to scaffold the tutee to the highest level achievable.

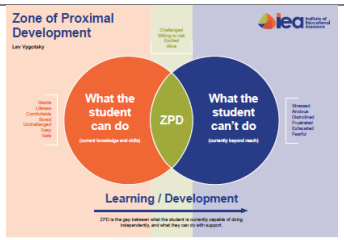
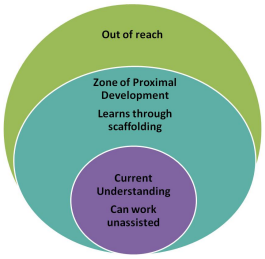
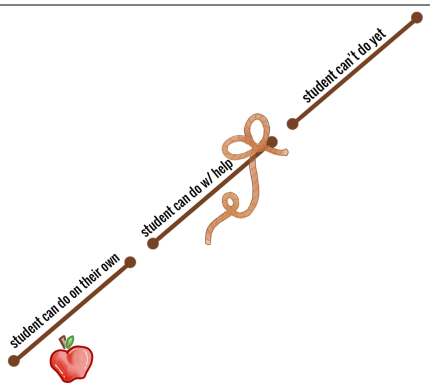
Appendix 9. Content Map

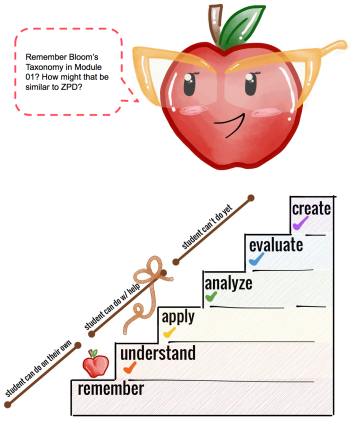
#	Test Question	Instructional Content	Supplementary Media
Module 01			
1	Choose the definition below that best describes "taxonomy"	Definition of "Taxonomy" + Explanation of how it relates to the term "Bloom's Taxonomy"	None
2	Choose the correct order of Bloom's Taxonomy from *lowest to highest* order of understanding	Explanation of each level with traditional pyramid	
7	For the Remember Level of Bloom's Taxonomy choose the appropriate level...	Table of appropriate verbs per level	[Table]
12	Based on the following scenario, state why using Bloom's Taxonomy is beneficial for the tutee	Brief history of Benjamin Bloom and the evolution of the taxonomy as views of learning changed	
16	Explain the concept of Checking for Understanding. You must also refer to parts of the accompanying Bloom's Taxonomy diagram in your explanation.	Bloom's Taxonomy Modern Diagrams and their distinctions	

			   
18	**...**create an ideal tutoring session. You must include all 4 terms in your description…	Bloom's Taxonomy as it applies to tutoring. How is it applied?	None

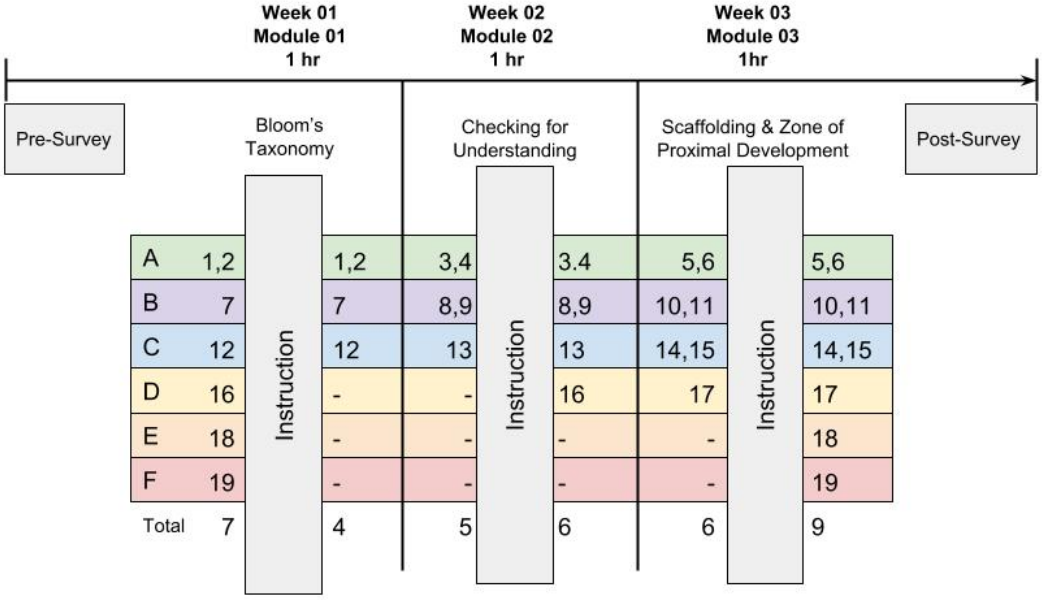
19	...use the space below to assess your tutee's current level of understanding, and describe appropriate techniques needed to scaffold them to the highest level achievable.	Above content, What have we learned so far?	
Module 02			
3	Choose the definition below that best describes "understanding" in terms of education	Definition of "understanding" + how it relates to Checking for Understanding. Understanding vs Recognition.	None
4	From these 4 short scenarios, choose the one that correctly describes a tutor who is checking for understanding	Table of techniques for Checking for Understanding	[Table]
8	Circle the letter that corresponds to the steps when Checking for Understanding would occur.	Tutor Cycle	
9	True or false, creating a Mind Map is a form of Checking for Understanding discussed in the module	Table of techniques for Checking for Understanding	None
13	Based on the following scenario, state why using Checking for Understanding is beneficial for the tutee	Checking for Understanding it as it relates to tutoring. How is it applicable (more obvious	None

		than something theoretical like Bloom's Taxonomy)	
16	Explain the concept of Checking for Understanding. You must also refer to parts of the accompanying Bloom's Taxonomy diagram in your explanation.	Checking for Understanding at is relates to Bloom's Taxonomy	
18	**...**create an ideal tutoring session. You must include all 4 terms in your description…		None
19	...use the space below to assess your tutee's current level of understanding, and describe appropriate techniques needed to scaffold them to the highest level achievable.	Checking for Understanding it as it relates to tutoring. How is it applicable (more obvious than something theoretical like Bloom's Taxonomy)	None
Module 03			
5	From the definitions below, choose 1 that best describes "scaffold" in terms of education	Definition of "scaffold" + how it relates to Scaffolding in education	None
6	From the definitions below, choose 1 that best describes "ZPD"	Explanation of ZPD + brief history including views of Vygotsky on learning	None

10	From the list below, choose 1 that is a potential scaffold discussed in the module	List of scaffolds	[Table]
11	Label the following diagrams either Zone of Proximal Development or Bloom's Taxonomy.	Bloom's Taxonomy recap from Module one	 **Zone of Proximal Development** 
14	Based on the following scenario, state why using Scaffolding is beneficial for the tutee	Explanation of Scaffolding as it applies to tutoring	None
15	Based on the following scenario, state why using Zone of Proximal Development is beneficial for the tutee	Explanation of Zone of Proximal Development as it applies to tutoring	None
17	Explain the concept of Scaffolding. You must also refer to parts of the accompanying Zone of Proximal Development diagram in your explanation.	Scaffolding as it relates to Zone of Proximal Development	

18	**...**create an ideal tutoring session. You must include all 4 terms in your description…	Scaffolding as it relates to Zone of Proximal Development	None
19	...use the space below to assess your tutee's current level of understanding, and describe appropriate techniques needed to scaffold them to the highest level achievable.	Above + previous content. + Explanation of final of 3 pieces	

Appendix 10. Question Map



Appendix 11. CITI Training Certificates

CITI PROGRAM

Completion Date 30-Aug-2018
Expiration Date 29-Aug-2021
Record ID 28418642

This is to certify that:

Shauna Sibonga

Has completed the following CITI Program course:

Information Privacy Security (IPS) (Curriculum Group)
Exempt Researchers and Key Personnel IPS (Course Learner Group)
1 - Basic Course (Stage)

Under requirements set by:

University of Hawaii

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w0083bc75-ab95-45d9-9b0f-f963c52be3e0-28418642

CITI PROGRAM

Completion Date 30-Aug-2018
Expiration Date 29-Aug-2021
Record ID 28418641

This is to certify that:

Shauna Sibonga

Has completed the following CITI Program course:

Information Privacy Security (IPS) (Curriculum Group)
Non-Exempt Social & Behavioral Sciences Researchers and Key Personnel IPS (Course Learner Group)
1 - Basic Course (Stage)

Under requirements set by:

University of Hawaii

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?wce54314b-4007-47f7-8ca2-3bd1060185ec-28418641

CITI PROGRAM

Completion Date 30-Aug-2018
Expiration Date 29-Aug-2021
Record ID 21957110

This is to certify that:

Shauna Sibonga

Has completed the following CITI Program course:

Human Subjects Research (HSR) (Curriculum Group)
Exempt Researchers and Key Personnel (Course Learner Group)
1 - Basic Course (Stage)

Under requirements set by:

University of Hawaii

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w59681970-695e-487e-973c-f808aaf338bc-21957110